

REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Office Action dated June 5, 2002. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Claims 7 through 34 are currently pending in this application after entry of this amendment. As outlined above, new Claims 7 through 34 are being added to more particularly point out and distinctly claim the subject invention. Entry of new Claims 7 through 34 is respectfully requested. Also, Claims 1 through 6 have been cancelled without prejudice or disclaimer of their subject matter. Also, the Specification and the drawing Figures 13, 18, and 19 are being amended as previously set forth herein to correct formal errors and to place the application in better form. Entry of the amendments to the Specification and to drawing Figures 13, 18, and 19, are also respectfully requested. It is submitted that no new matter is being submitted through the filing of this response.

Prior Art Rejections

Claims 1 and 3 through 6 were rejected under 35 U.S.C. 102(b) over Japanese Application Publication No. 06-034984 (Misono '984). This rejection is respectfully traversed.

Claims 1 and 3 were rejected under 35 U.S.C. 102(b) over Japanese Application Publication No. 61-162025 (Obata '025). This rejection is respectfully traversed.

Claim 2 was rejected under 35 U.S.C. 103 (a) over Misono '984 in view of U.S. Patent No. 6,239,855 ('855 Patent). This rejection is respectfully traversed.

The above mentioned rejections under 35 U.S.C. 102(b) and 35 U.S.C. 103(a) will be considered collectively.

As mentioned previously Claims 1 through 6 have been cancelled without prejudice or disclaimer of their subject matter, and new Claims 7 through 34 have been added.

In this regard, it is respectfully submitted that neither Misono '984, Obata '025 nor the '855 Patent discloses:

a liquid crystal display device, including: a pair of substrates with a liquid crystal layer therebetween; a seal material for adhesion of the pair of substrates; a plurality of first projection bodies disposed within the seal material and disposed along the seal material; and a plurality of second projection bodies disposed without the seal material and disposed along the seal material, and with the plurality of first projection bodies and the plurality of second projection bodies being arranged in substantially parallel relation to each other, as respectively recited in Claim 7;

a liquid crystal display device, including: a pair of substrates with a liquid crystal layer therebetween; a seal material for adhesion of the pair of substrates; a plurality of first projection bodies disposed around the seal material; and a plurality of second projection bodies disposed in a display area and adhered to one of the pair of substrates, and with at least a size of the plurality of first projection bodies being wider than at least a size of the plurality of second projection bodies, as respectively recited in Claim 13;

a liquid crystal display device, including: a pair of substrates with a liquid crystal layer therebetween; a seal material for adhesion of the pair of substrates; a plurality of first projection bodies disposed at one outside of the seal material and disposed along the seal material and adhered to one of the pair of substrates; and a plurality of second projection bodies disposed at another outside of the seal material and disposed along the seal material and adhered to one of the pair of substrates, and with an area of projection bodies within the seal material being lower than an area of the first projection bodies and lower than an area of the second projection bodies, as respectively recited in Claim 19;

a liquid crystal display device, including: a pair of substrates with a liquid crystal layer therebetween; a seal material for adhesion of the pair of substrates; a plurality of first projection bodies disposed at one outside of the seal material and disposed along the seal material and adhered to one of the pair of substrates; and a plurality of second projection bodies disposed at another outside of the seal material and disposed along the seal material and adhered to one of the pair of substrates, wherein the plurality of first projection bodies, the seal material, and the plurality of second projection bodies are arranged in substantially parallel relation in that order, as respectively recited in Claim 25; and

a liquid crystal display device, including: a pair of substrates with a liquid crystal layer therebetween; a seal material for adhesion of the pair of substrates; at least one projection body adhered to one of the pair of substrates; and at least one recess arranged at another of the pair of substrates, and with the at least one projection body and the at least one recess being arranged in facing relation to each other, as respectively recited in Claim 31.

In contrast, Misono '984 discloses a liquid crystal display element which includes an injection port 5a for injecting the liquid crystal of a liquid crystal display element is formed to an arching part 5b where a sealing part 5 arches to the side opposite from a direction where the liquid crystal is injected, with a wall part 9 on nearly the same straight line as the end face of the sealing part 5 exclusive of the arching part 5b is disposed opposite to the arching part 5b in the direction where the liquid crystal is injected. Also, Misoso '984 discloses a flow passage formed of the wall part 9 and the arching part 5b is provided with a buffer part 10 for lowering the flow velocity of the liquid crystal flowing in the flow passage, and further discloses spacers 7 and a partition section 11-11. (Abstract, English translation paragraphs 0015, 0017 and 0021-0023) However, such disclosure of Misono '984 does not disclose a liquid crystal display device as respectively recited in new Claims 7, 13, 19, 25 and 31.

Also, in contrast, Obata '025 discloses a spacer 4, formed on the liquid crystal injection port and fixed by an orientation film 2 and a spacer 5 formed in a sealing material, with the interval of the liquid crystal injection port being held by the spacer 4, with a sealing resin 6 entering into the inside of a cell. (Abstract) However, such disclosure of Obata '025 does not disclose a liquid crystal display device as respectively recited in new Claims 7, 13, 19, 25 and 31.

Moreover, in contrast, the '855 Patent discloses a method for producing a liquid crystal display panel including forming a plurality of injection seals on at least one of a pair of substrates, with the injection seals defining a liquid crystal injection area, forming a dummy seal of dispersed sealant particles outside the liquid crystal injection area, attaching the substrates to each other to sandwich the injection seal and the dummy seal therebetween, and injecting a liquid crystal material into the liquid crystal injection area formed between the pair of substrates. (Abstract) Also, in contrast, referring to Figure 17 in the '855 Patent, the sealant particles 51 are the seal material itself. Therefore, such disclosure of the '855 Patent does not disclose a liquid crystal display device as respectively recited in new Claims 7, 13, 19, 25 and 31.

Therefore, in view of the foregoing discussion, Claims 7, 13, 19, 25 and 31 are not anticipated by and are not obvious over any of Misono '984, Obata '025 or the '855 Patent.

Claims 8 through 12, 14 through 18, 20 through 24, 26 through 30, and 32 through 34 are at least allowable for the same reasons the independent claims from which they respectively depend, namely Claims 7, 13, 19, 25 and 31 are allowable. Also, Claims 1 through 6 have been cancelled without prejudice or disclaimer of their subject matter. Withdrawal of the 35 U.S.C. 102(b) rejection of Claims 1 and 3 through 6, withdrawal of the 35 U.S.C. 102(b) rejection of Claims 1 and 3, and withdrawal of the 35 U.S.C. 103(a) rejection of Claim 2, are respectfully requested.

Wherefore, in view of the foregoing, reconsideration and allowance of new Claims 7 through 34, are respectfully requested.

Favorable reconsideration of this application as amended is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

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MARKED-UP COPY OF THE AMENDMENTS

IN THE SPECIFICATION

Please amend the specification as follows:

Please amend the paragraph bridging pages 3 and 4, from line 24 on page 3 through line 2 on page 4, as follows:

[Fig. 4] Figs. 4A and 4B are [is a] main part arrangement [diagram] diagrams showing another embodiment of the liquid crystal display device in accordance with the instant invention;

Please amend the paragraph on page 4, from lines 15 through 17, as follows:

[Fig. 9 is a] Figs. 9A and 9B are main part plan view [diagram] diagrams showing another embodiment of the liquid crystal display device in accordance with the invention;

Please amend the paragraph on page 5, from lines 5 through 6, as follows:

[Fig. 14 is a] Figs. 14A and 14B are plan view [diagram] diagrams of a liquid crystal display device also embodying the invention;

Please amend the paragraphs on page 5, from lines 10 through 15, as follows:

[Fig. 16 is a] Figs. 16A-16E are process flow [diagram] diagrams showing one embodiment of a method for manufacturing a liquid crystal display device in accordance with this invention;

[Fig. 17 is a] Figs. 17A-17E are process flow [diagram] diagrams showing another embodiment of the liquid crystal display device manufacturing method in accordance with the invention;

Please amend the paragraph bridging pages 7 and 8, from line 19 on page 7 through line 2 on page 8, as follows:

In Fig. 1A, a region that is surrounded by gate signal lines GL extending in an "x" direction and being disposed in parallel with a "y" direction in the drawing and drain signal lines DL extending in the y direction and being laid out in parallel with the x direction is arranged as a pixel region[:]; in this region, a thin-film transistor TFT [as] is driven by a scan signal being

supplied from a gate signal line GL and a pixel electrode PX to which a video image signal is supplied from a drain signal line DL are formed.

Please amend the paragraph bridging pages 8 and 9, from line 24 on page 8 through line 4 on page 9, as follows:

[This] The projection bodies PRO are formed for example on the transparent substrate SUB2 side and are the ones that are fabricated by applying selective etching treatment using photolithography techniques to a resin film which has been uniformly formed on a specified surface of the transparent substrate SUB2 on the liquid crystal LC side by way of example.

Please amend the paragraph bridging pages 13 and 14, from line 25 on page 13 through line 2 on page 14, as follows:

Each [the] projection body PRO thus formed comes to have a role of smoothly guiding toward the display region AR when encapsulating the liquid crystal material LC.

Please amend the paragraph on page 14, from lines 10 through 16, as follows:

[Fig. 9 is a] Figs. 9A and 9B are plan view [diagram] diagrams showing another embodiment, which corresponds to Fig. 8. An arrangement different from that shown in Fig. 8 is that each projection body PRO is disposed radially when looking at from the encapsulation side of liquid crystal material while at the same time being laid out so that the back section side of the projection body PRO is incapable of being viewed.

Please amend the paragraph on page 14, from lines 20 through 24, as follows:

With such an arrangement, in the case of hardening a UV-hardenable material EC used to block the encapsulation hole after having encapsulated the liquid crystal material, UV rays will no longer [be] fall onto liquid crystals even when such UV rays are irradiated from the encapsulation side.

Please amend the paragraph on page 17, from lines 6 through 11, as follows:

This arrangement permits the gate signal line GL to comprise bypass circuitry in addition to its inherent signal line; thus, even upon occurrence of unwanted disconnection or "open-circuiting" at the gate signal line GL, the illustrative embodiment may offer an advantage that such [opencircuit] an open circuit is well protected by the bypass circuitry.

Please amend the paragraph on page 22, from lines 21 through 24, as follows:

The attachment section of the illustrative projection body PRO is a contact portion between alignment films, wherein these are made of the same material so that an inconvenience as to reduction of bonding forces would not occur.

Please amend the paragraph on page 23, from lines 5 through 7, as follows:

An explanation will next be given of one embodiment of a method for manufacturing the liquid crystal display device with the aforesaid arrangement with reference to [Fig. 16] Figs. 16A - 16E below.

Please amend the paragraph on page 24, from lines 4 through 6, as follows:

Another embodiment of the manufacturing method of the liquid crystal display device with the above-noted arrangement will be explained using [Fig. 17] Figs. 17A - 17E.

Please amend the paragraph on page 25, from lines 11 through 16, as follows:

This embodiment shown herein comprises a concave or recess portion 40 on the side of the other substrate opposing a substrate with more than one projection body PRO fixed thereto while letting a top portion of the projection body PRO be fitted into and mated with the recess 40 and illustrating a black matrix BM on one of the substrates.

IN THE CLAIMS

Please cancel Claims 1 through 6 without prejudice or disclaimer of their subject matter.